

**Genome, Epigenome, and Environment Determine the Set
of All Possible Motivated Behaviors.**

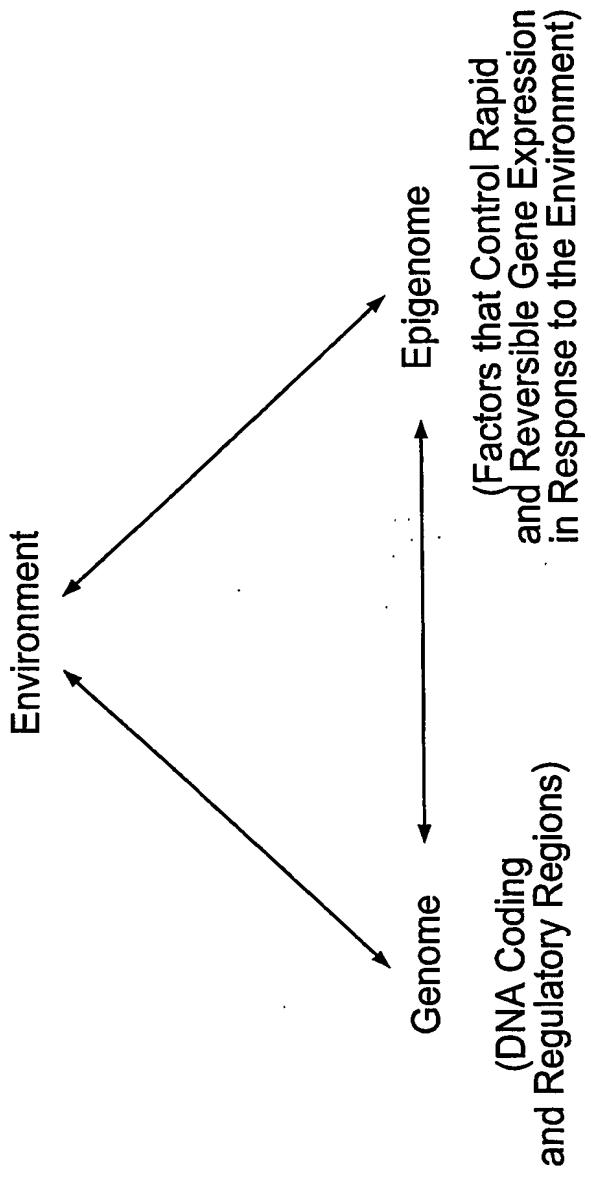


FIG. 1

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**Systems Biology Acts as an Interface Between
the Environment and Genome/Epigenome.**

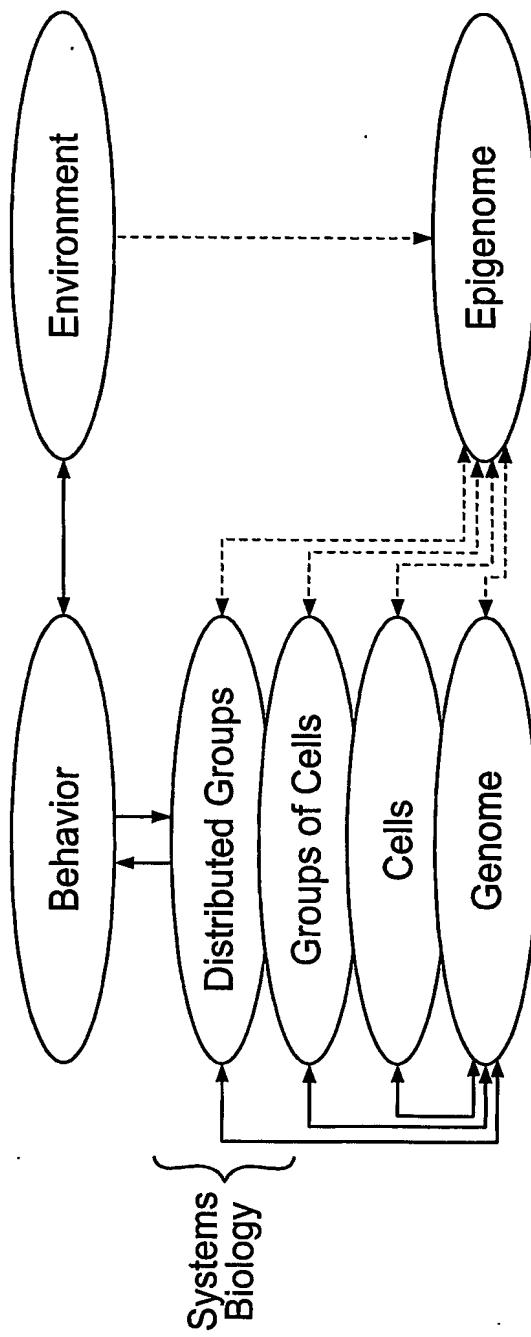


FIG. 2

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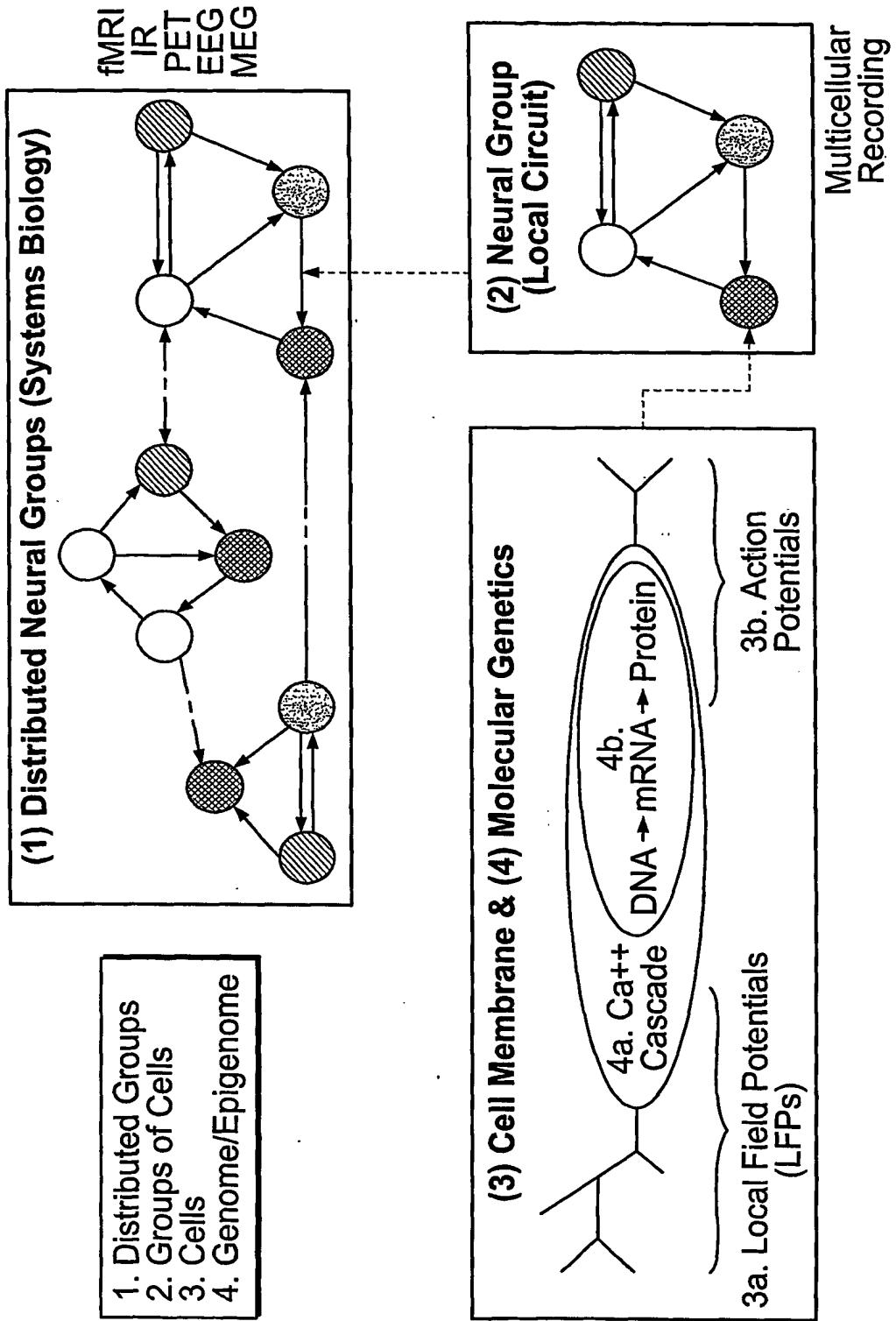


FIG. 3

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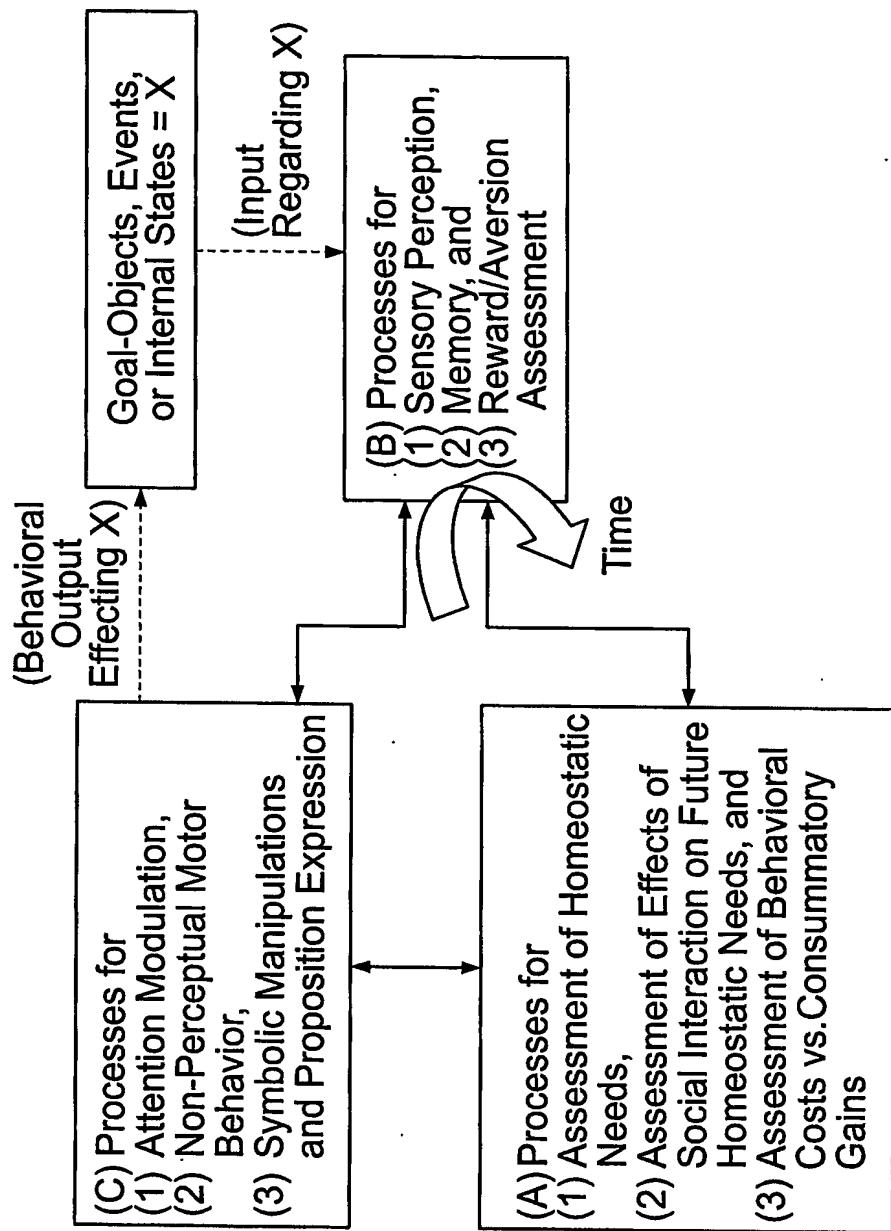
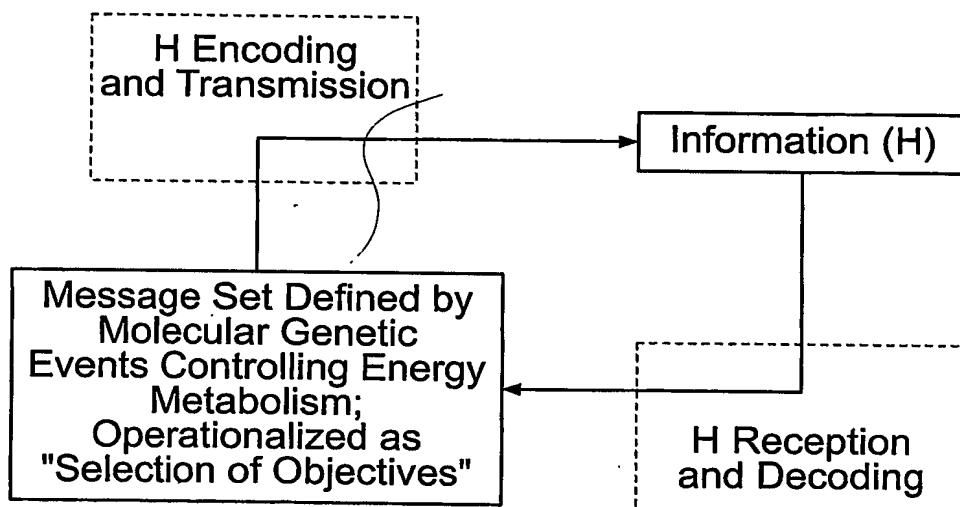
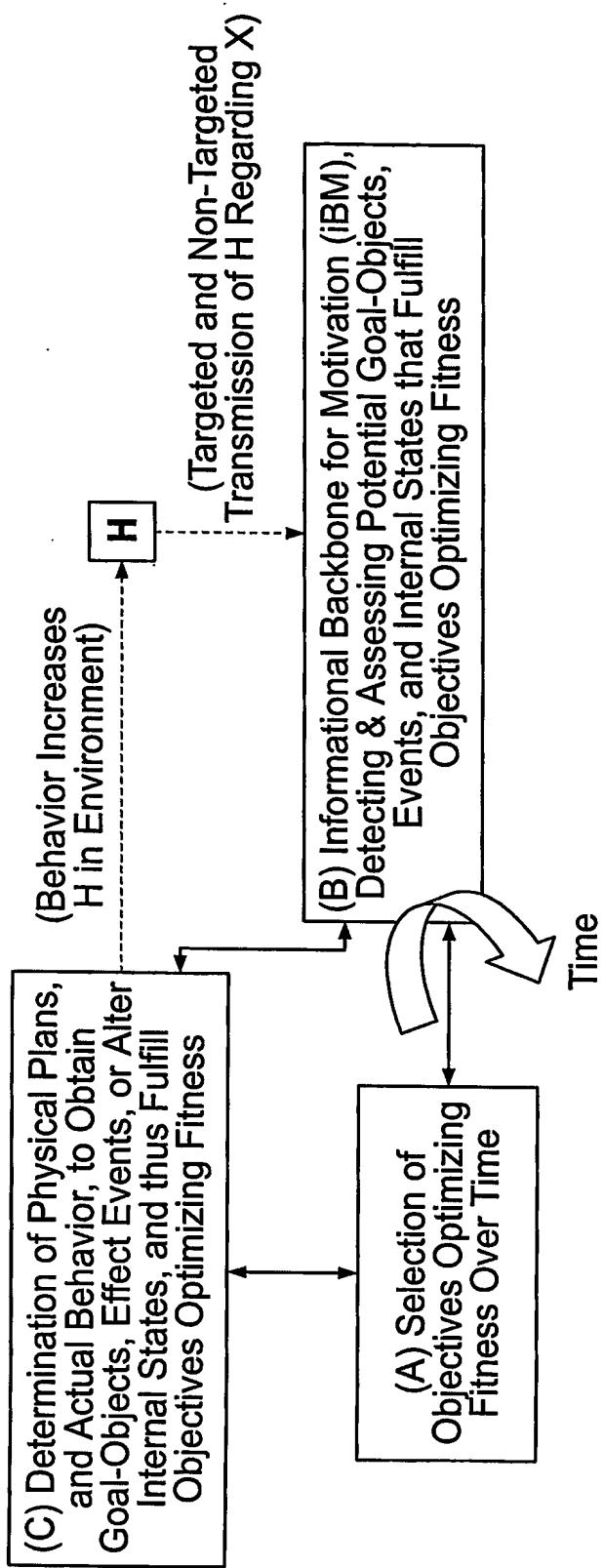
Cognitive Physiology Model

FIG. 4A

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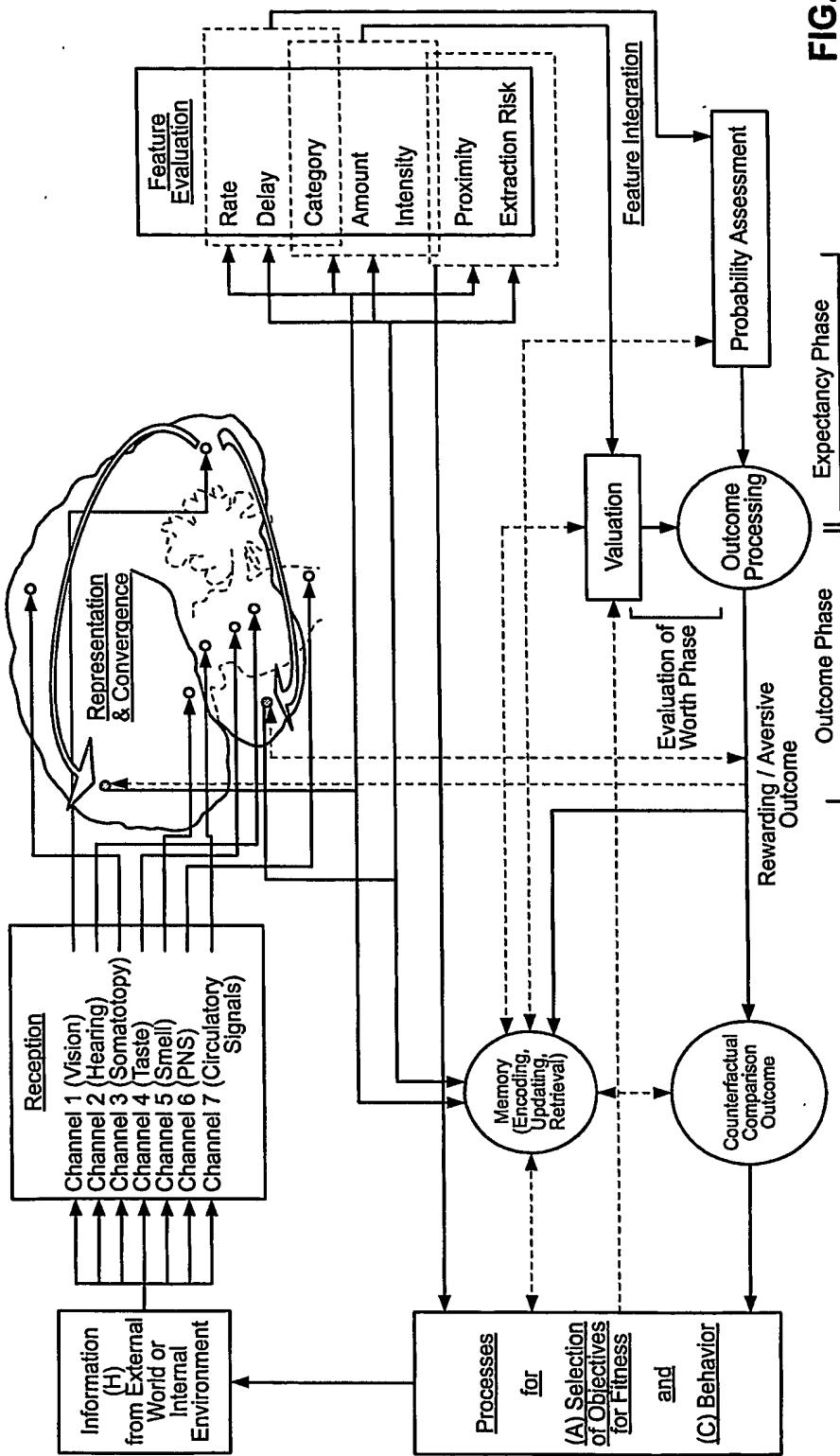
Communication Theory Model**FIG. 4B**

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Combined Model**FIG. 4C**

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The Informational Backbone for Motivation (iBM)

**FIG. 5**

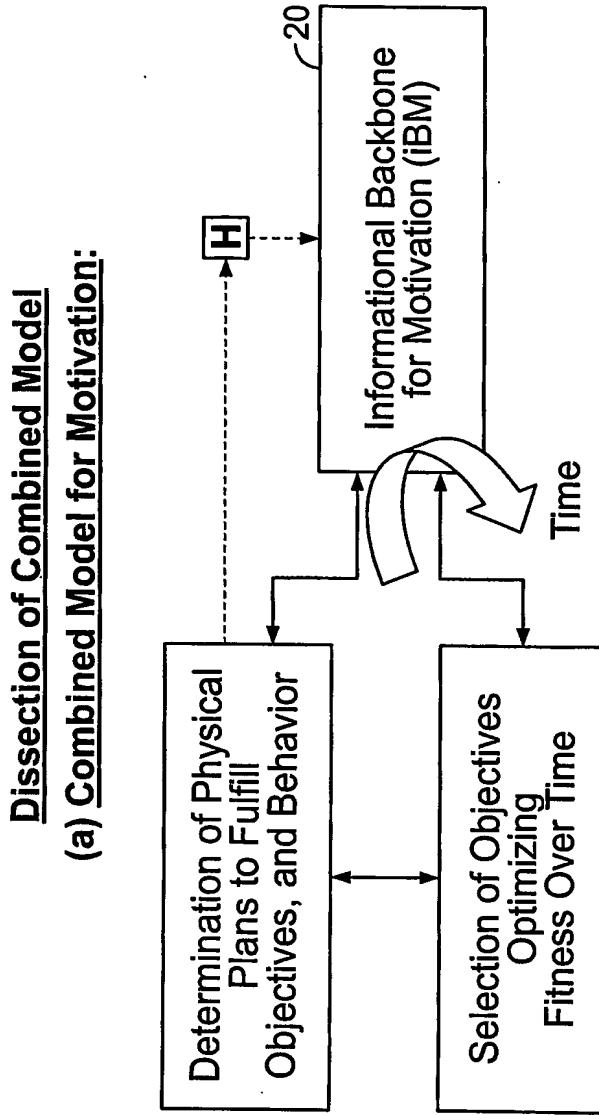


FIG. 6

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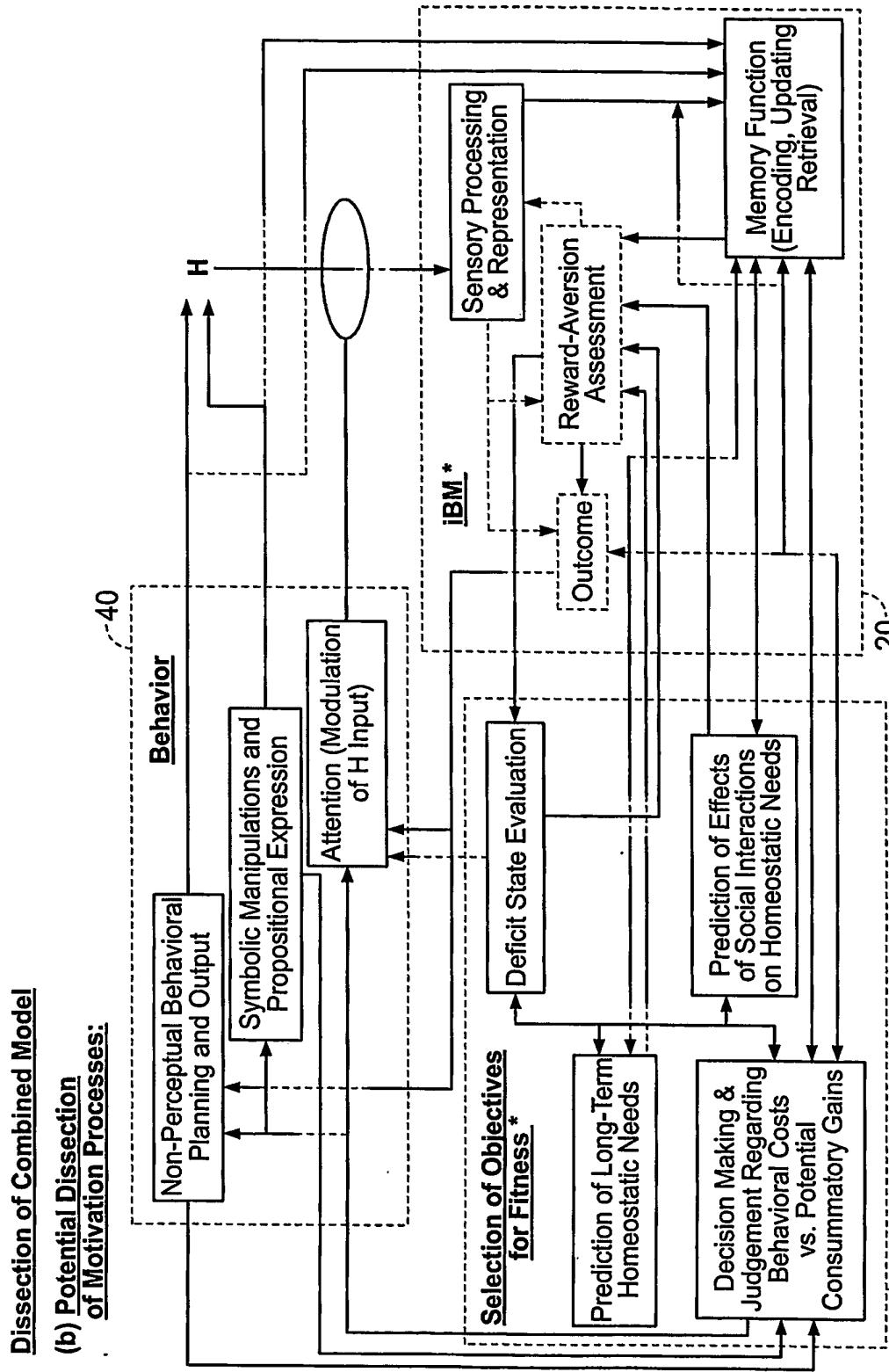
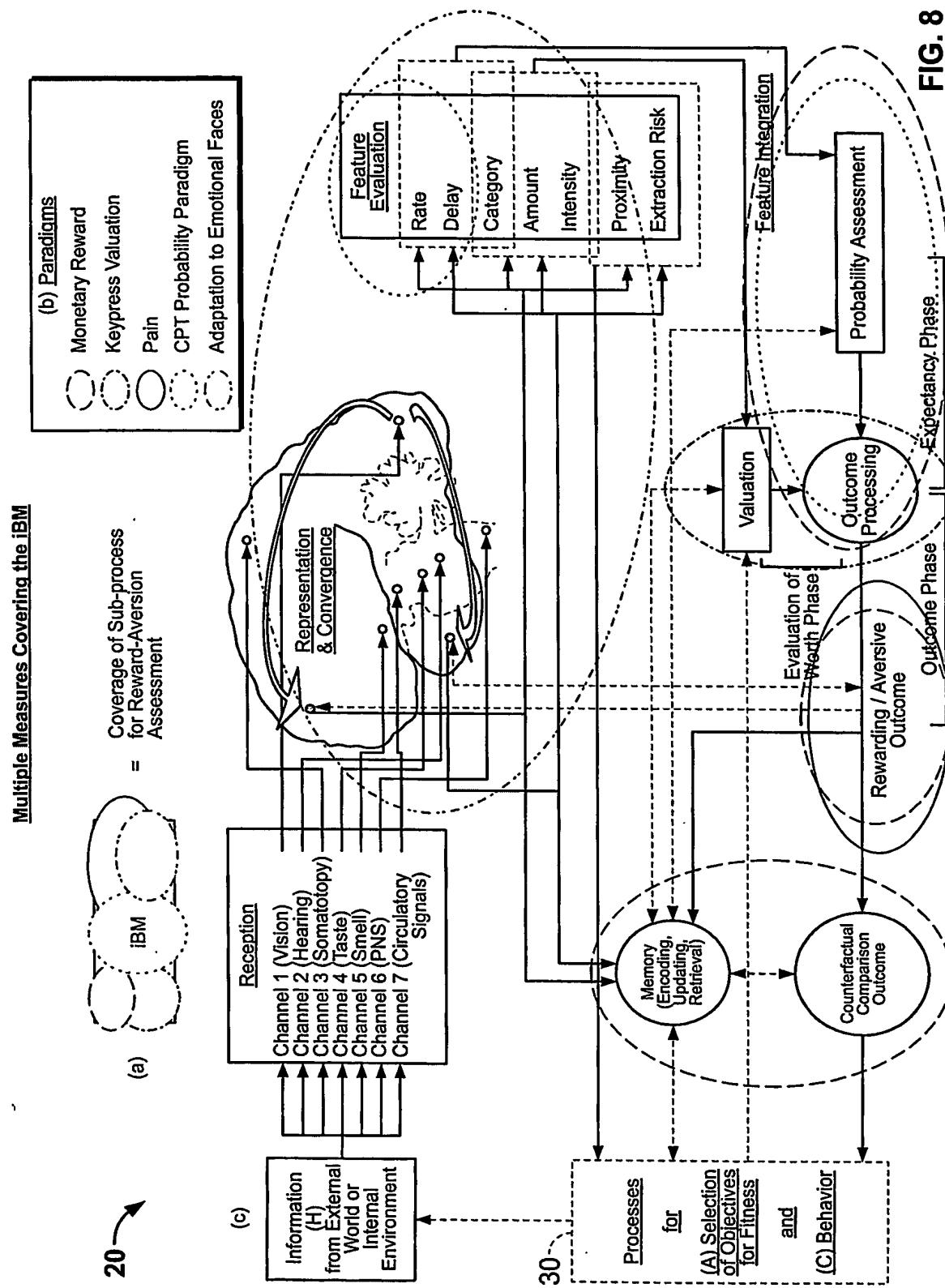


FIG. 7

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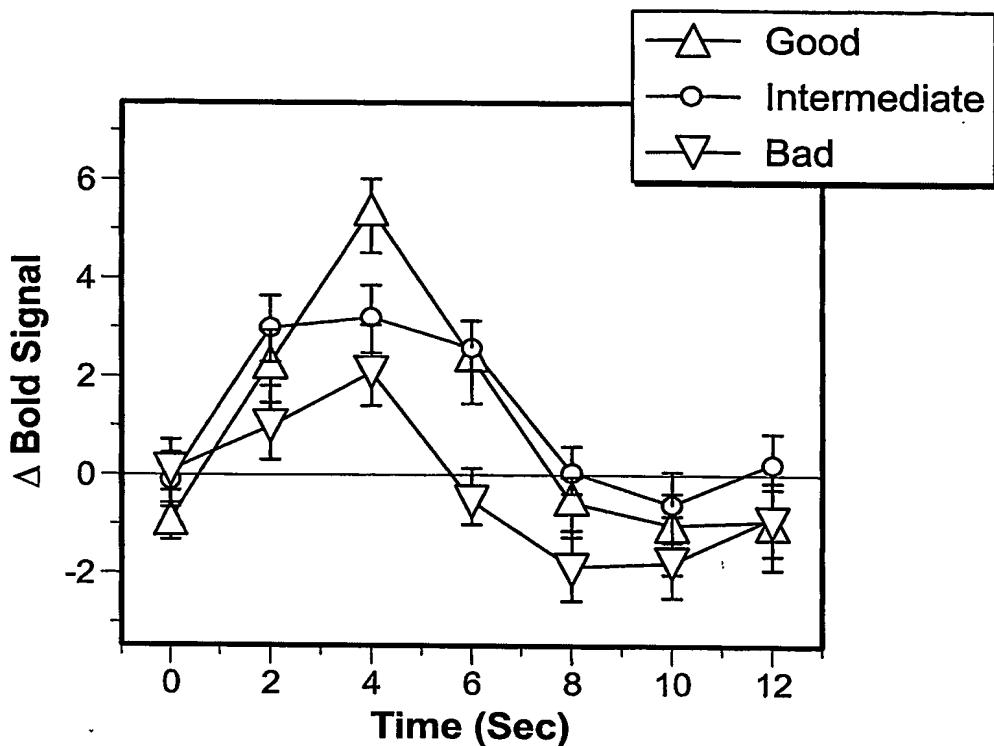


FIG. 9A

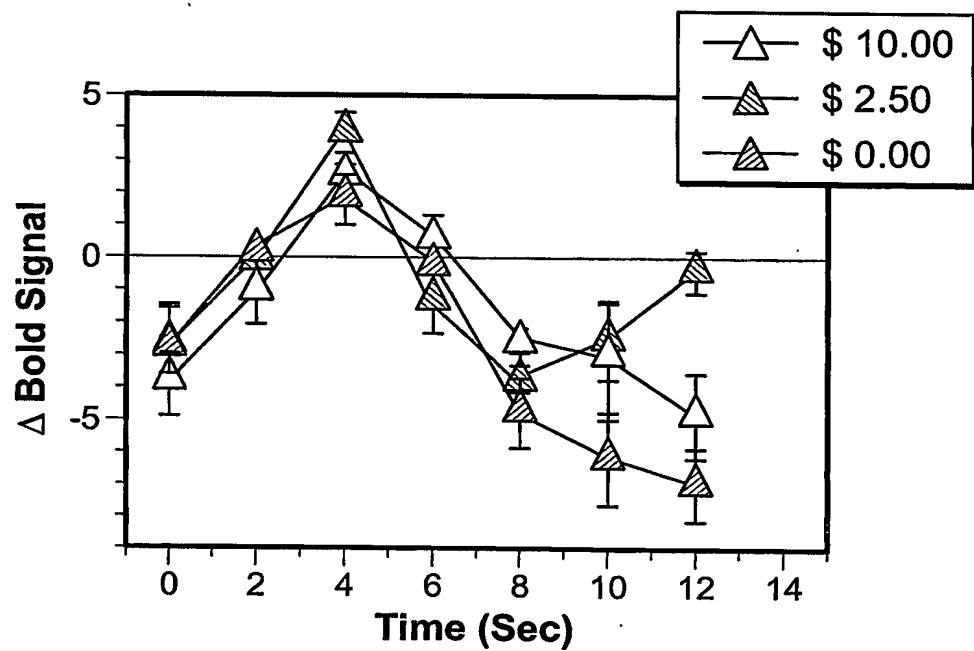


FIG. 9B

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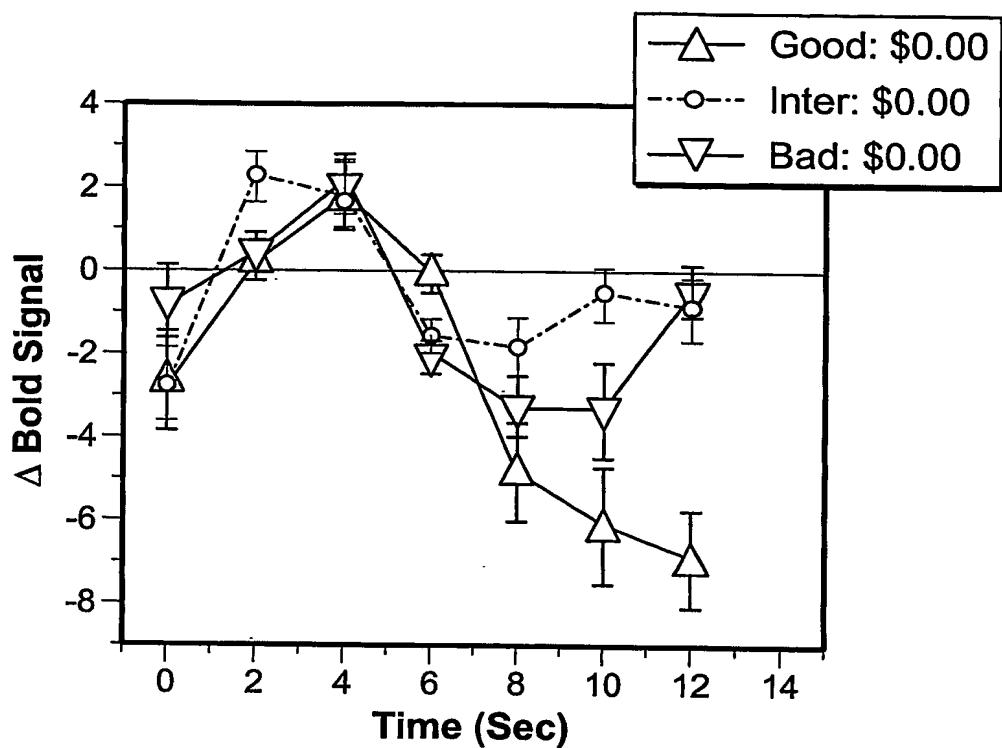


FIG. 9C

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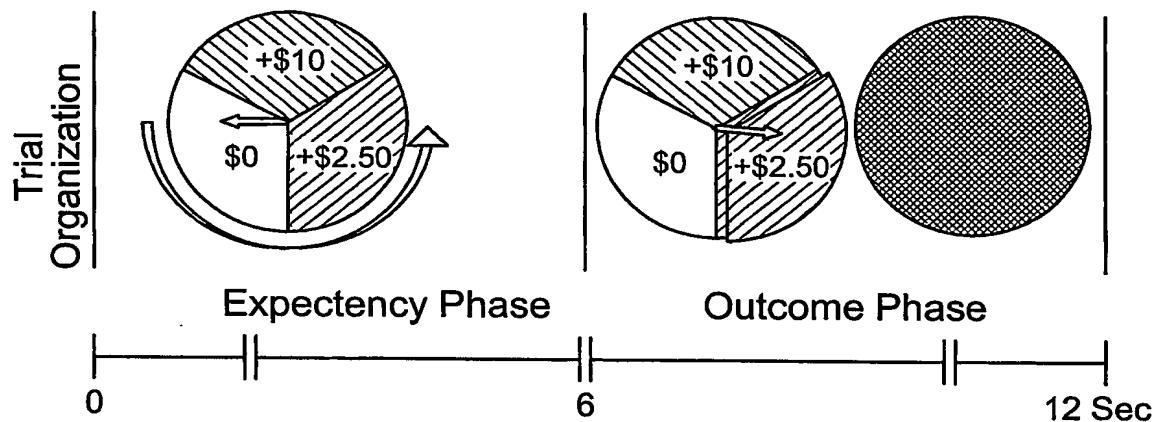


FIG. 9D

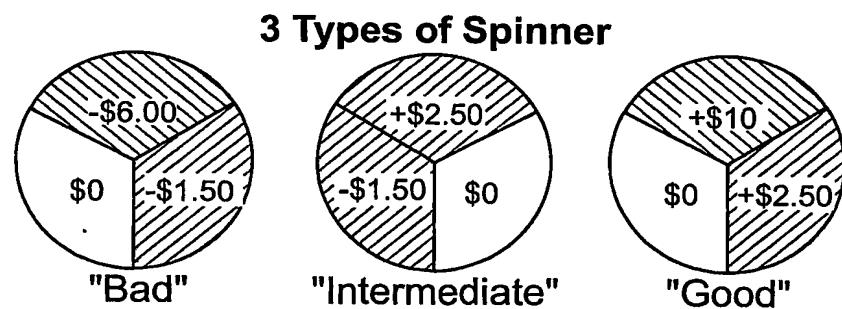


FIG. 9E

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Expectancy			Outcomes					
Region	Cocaine	Monetary Reward	Region	Cocaine	Monetary Reward	Beauty	Pain	
			(1)	(2)		(+)	(-)	
GOb	R	X ²	GOb	R	X	X ³	(X ²)	
	L	X ²		L	X	X ³	(X ²)	
NAC	R	X	NAC	R	X	X	(X)	
	L	X		L	X	X	X	
SLEA	R	X	SLEA	R	(X)	X	(X)	
	L	X		L	X	(X)	X	
Amygdala	R	X	Amygdala	R	(X)	X	(X)	
	L	X		L	X	X	(X)	
VT	R	X	VT	R	X	X	X	
	L	X		L	X	(X)	X	

FIG. 10A

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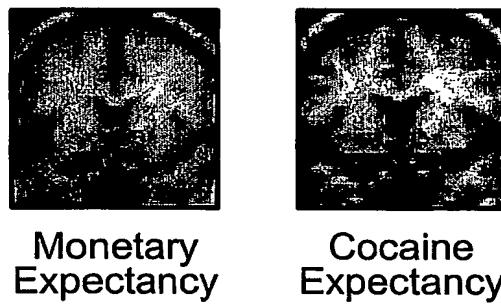
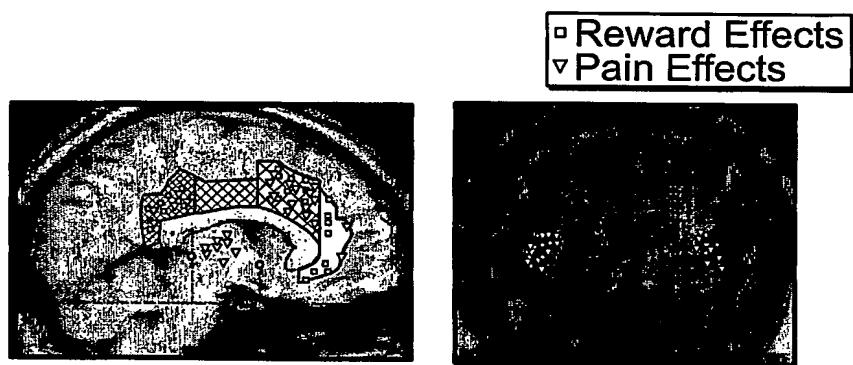


FIG. 10B

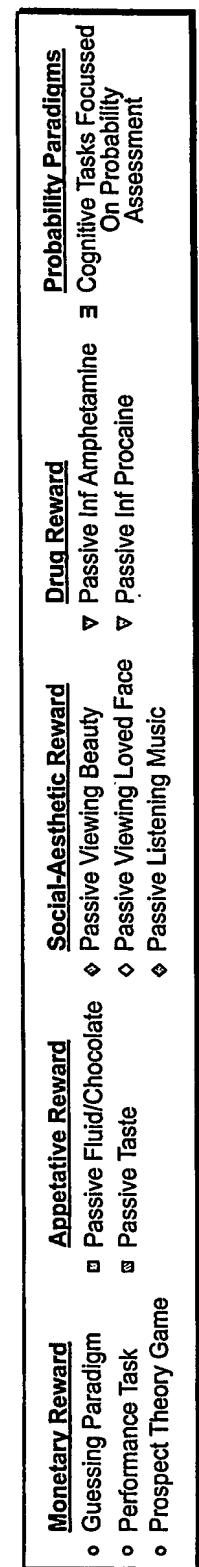
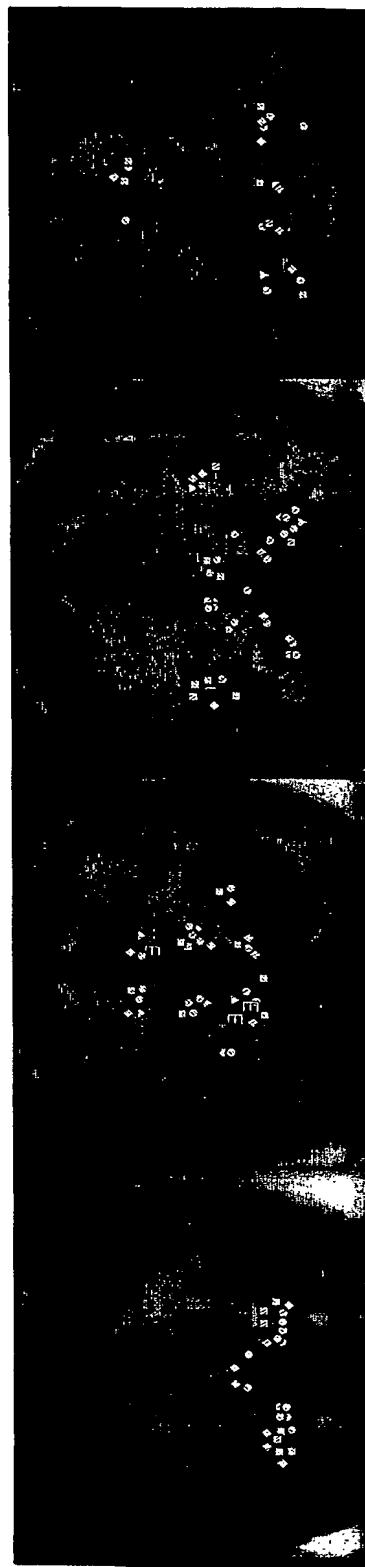
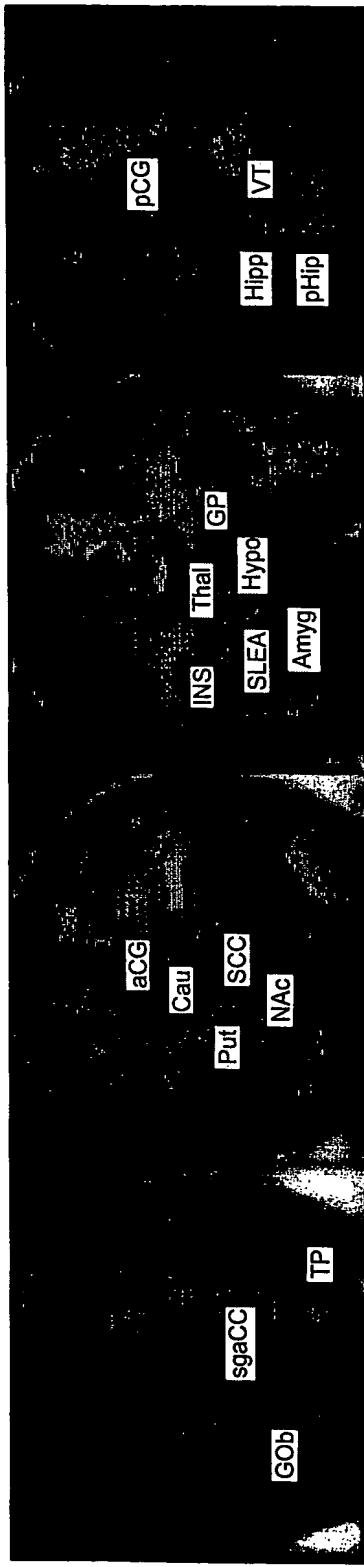
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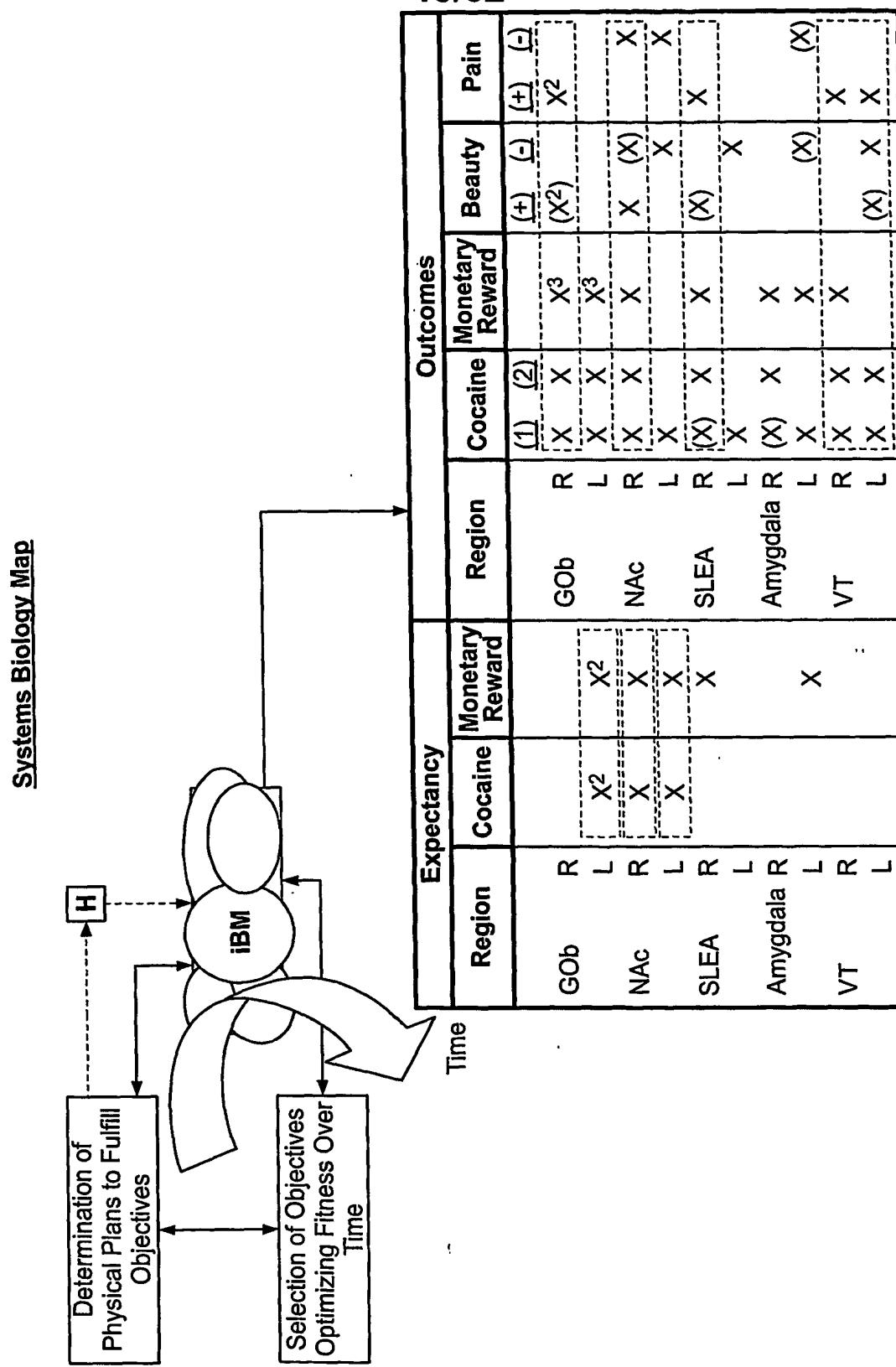
Reward and Pain in aCG, INS, Thal

FIG. 10C

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Consolidated Reward Studies in Healthy Subjects**FIG. 11**

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**Circuit-Based Differences Allude
to Endophenotype Variations in Functional Illness**

Major Depressive Disorder

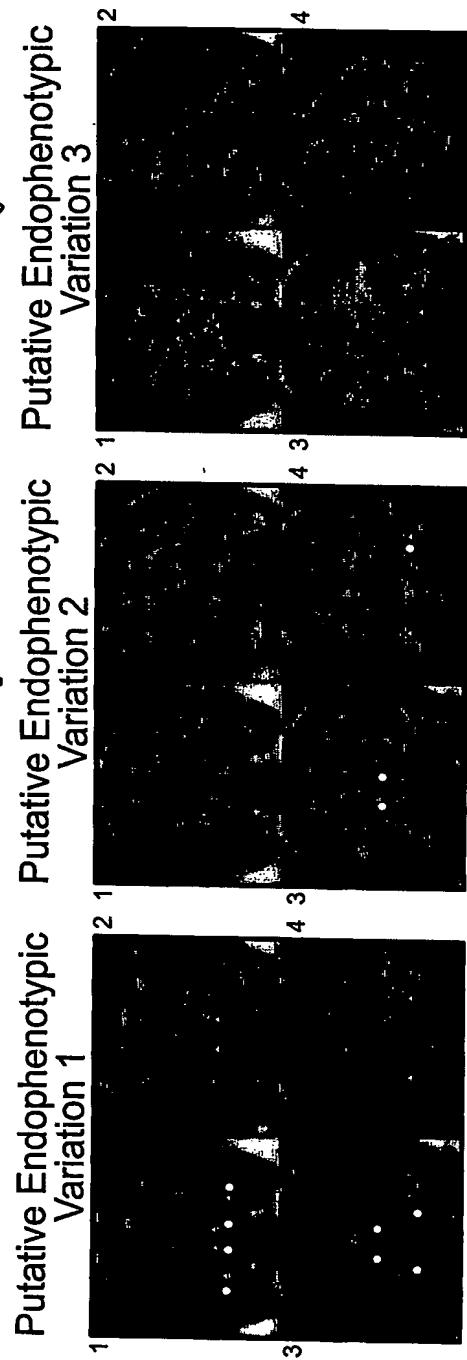


FIG. 13

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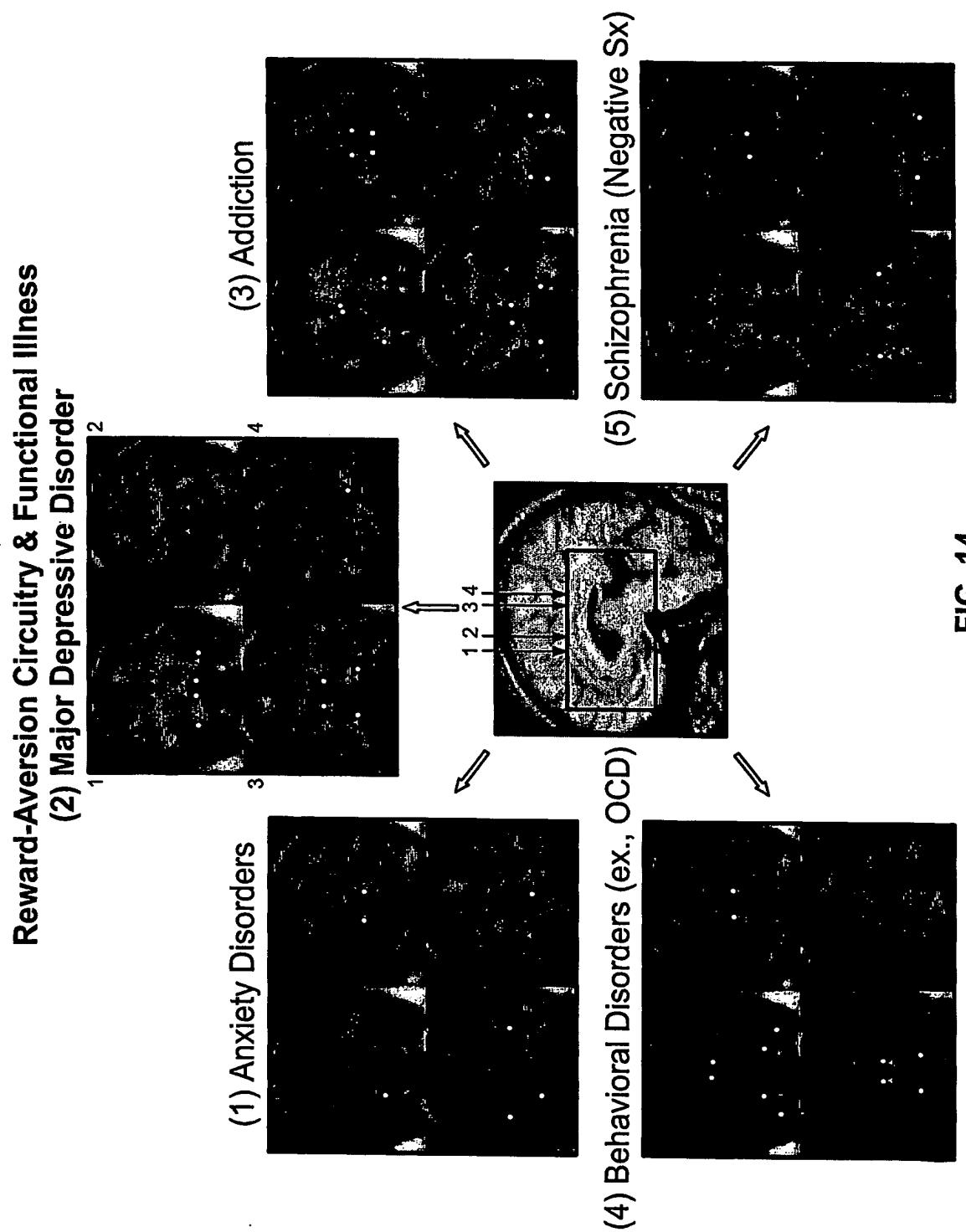


FIG. 14

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Top-Down Approach (Phenotype to Genotype):

Potential to Identify All Polymorphic Traits and Temporal Adaptations for a Behavioral Variant

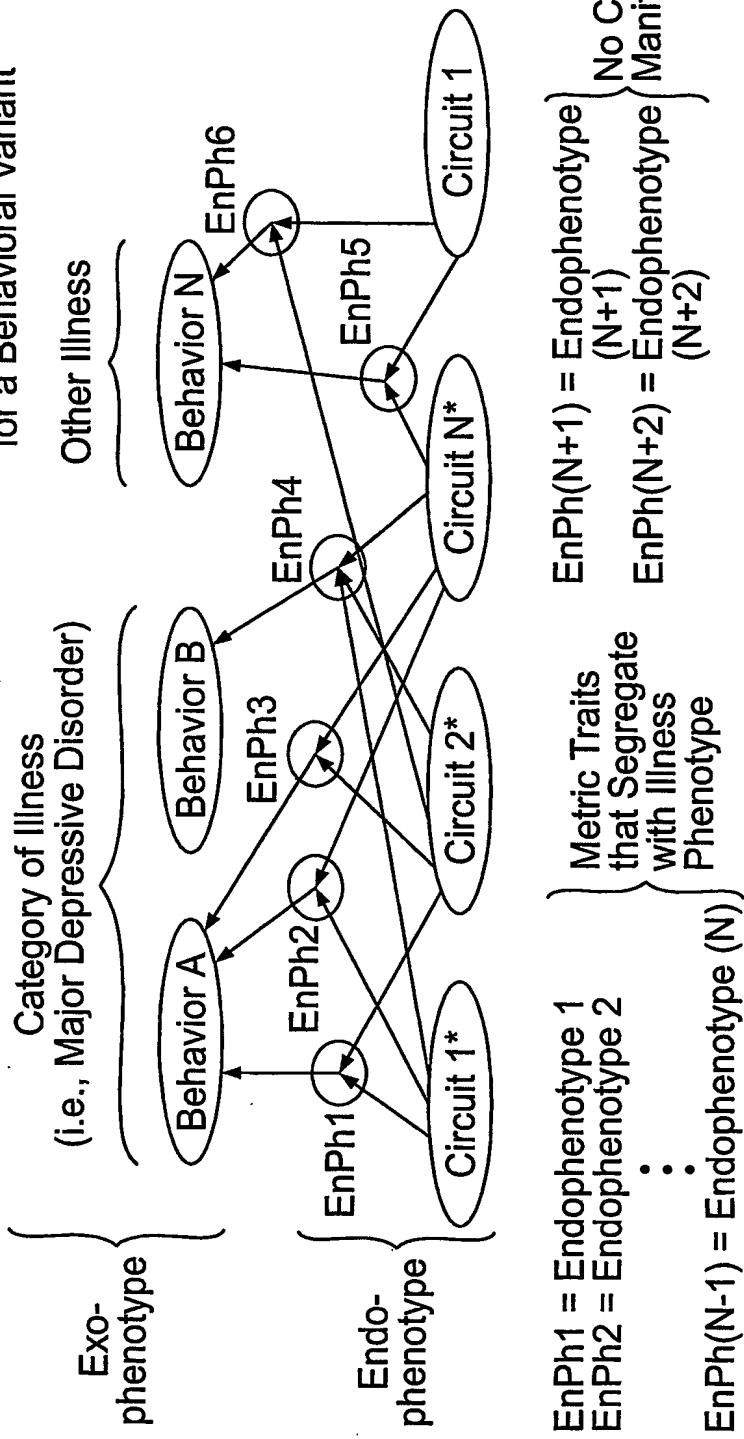


FIG. 15

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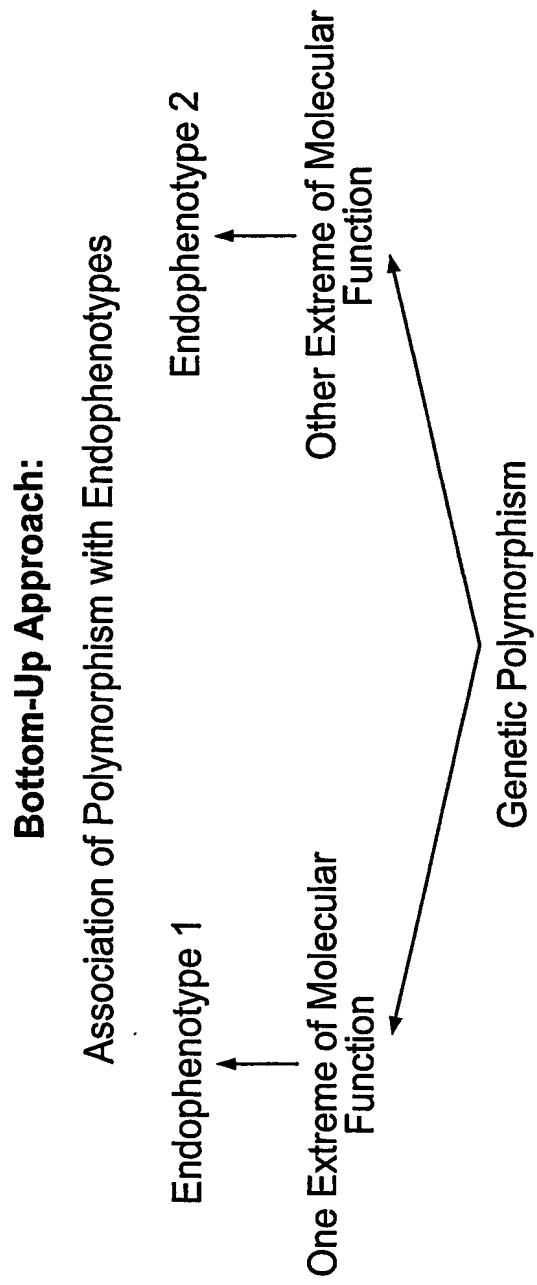
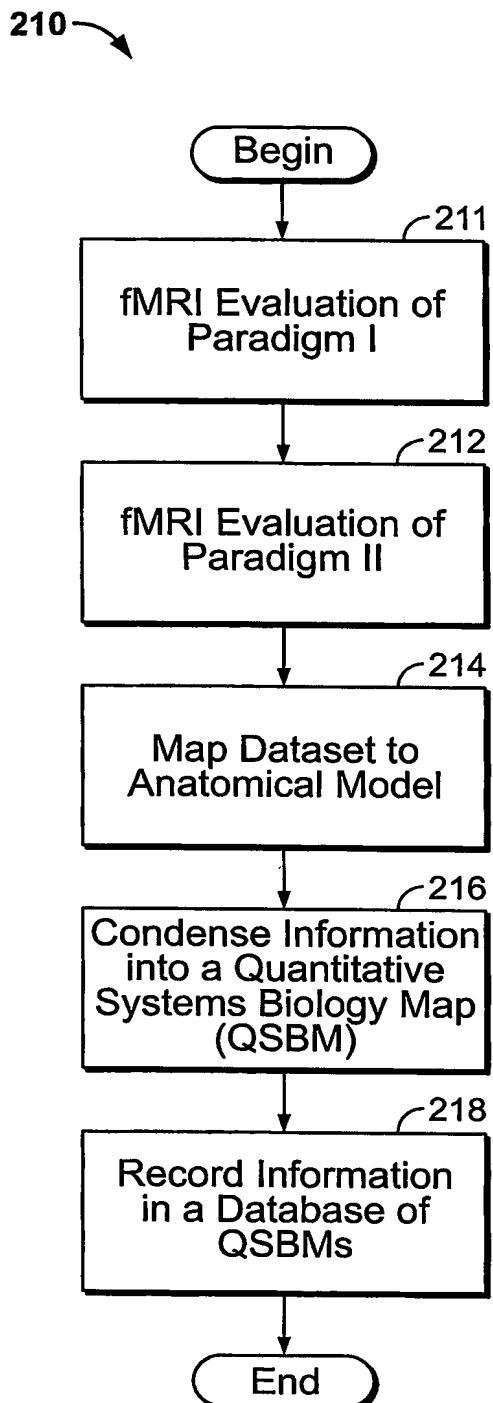
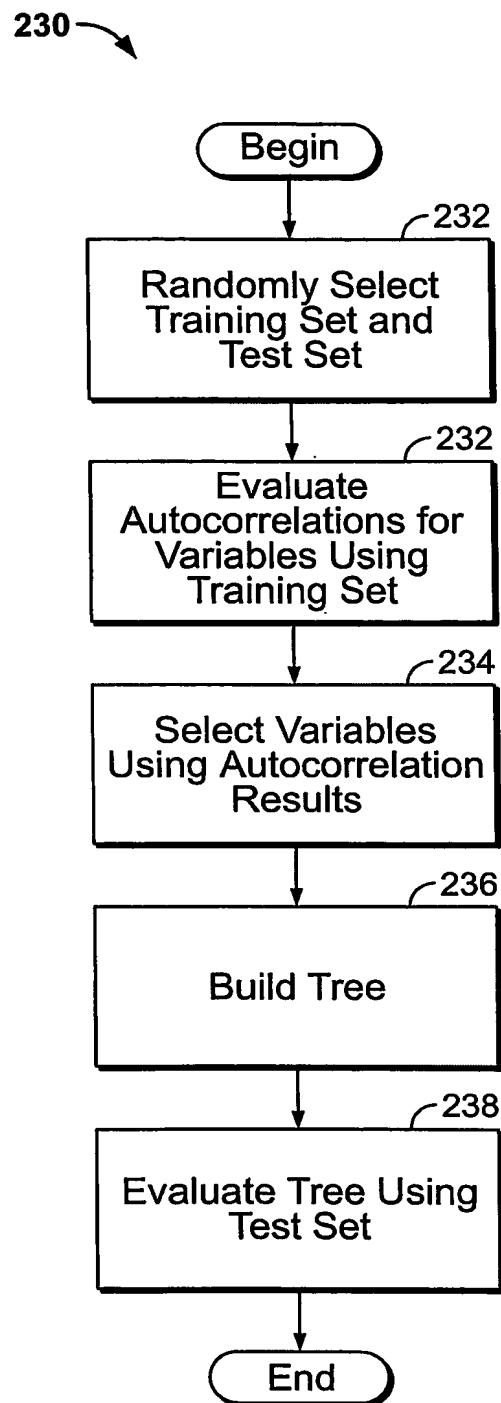


FIG. 16

23/32**FIG. 17**

24/32**FIG. 18**

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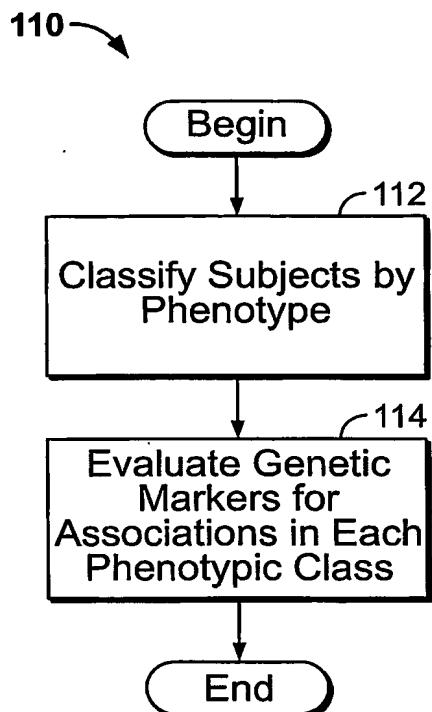


FIG. 19A

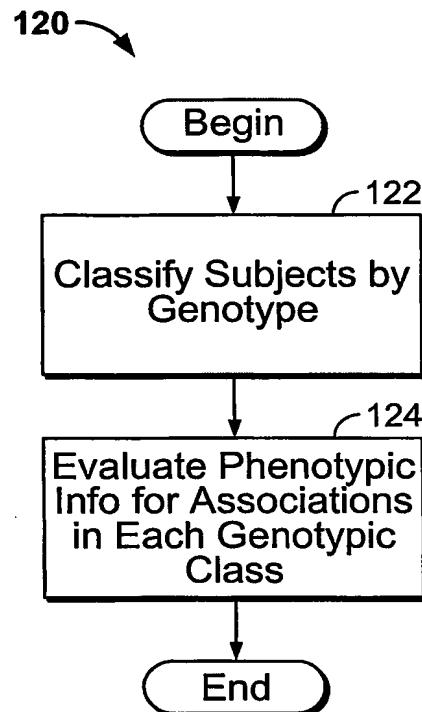


FIG. 19B

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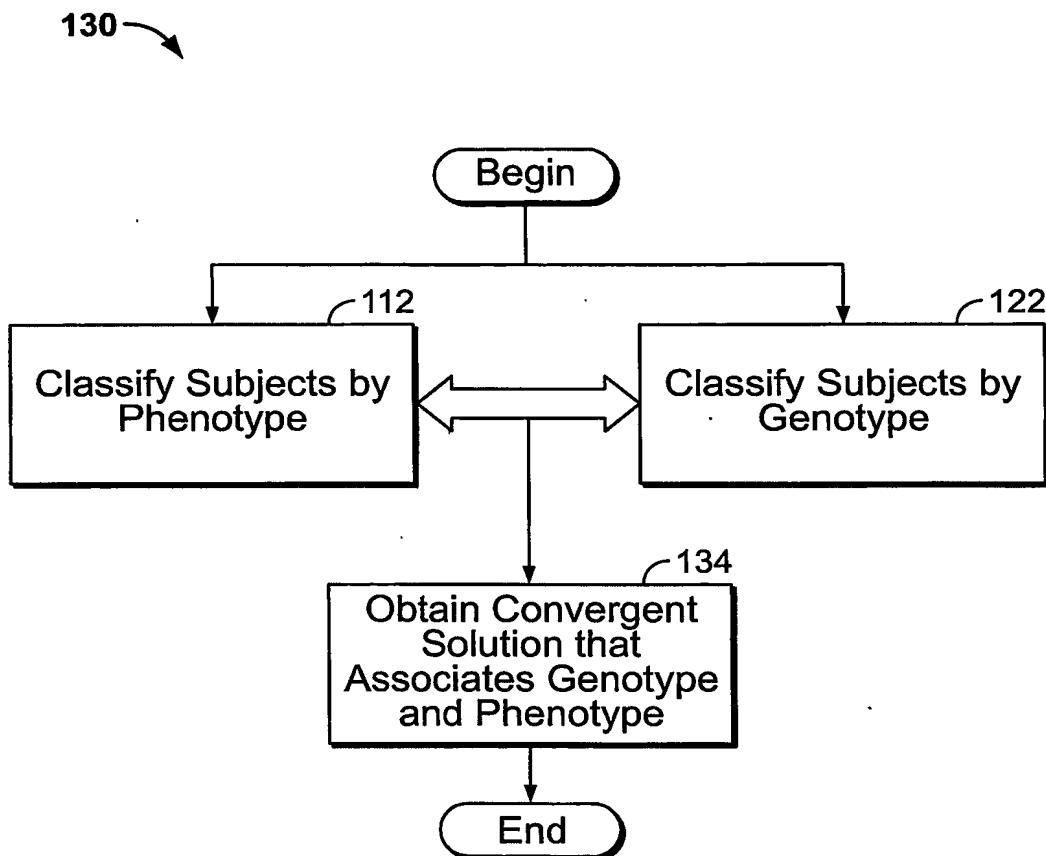


FIG. 19C

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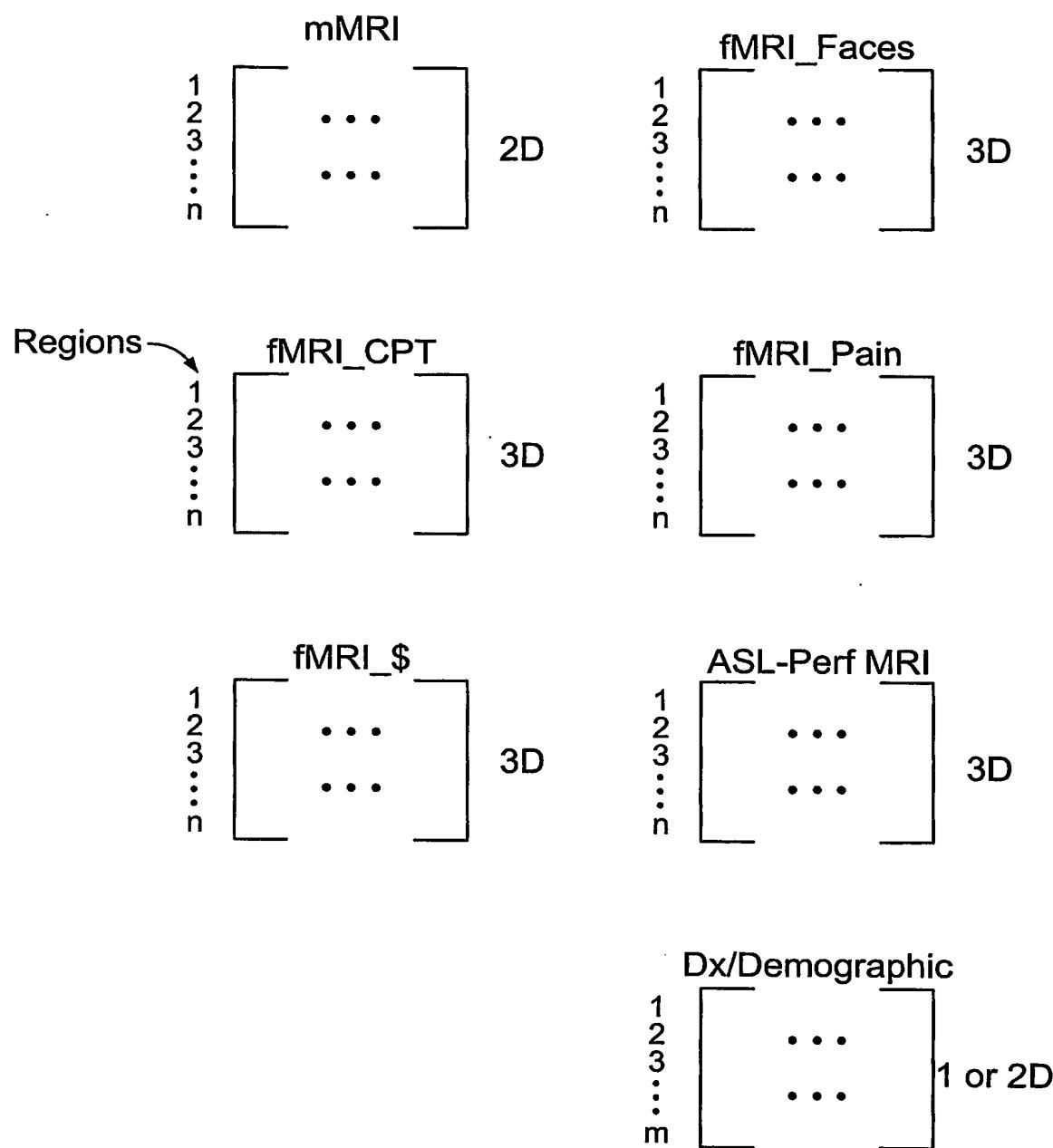


FIG. 20

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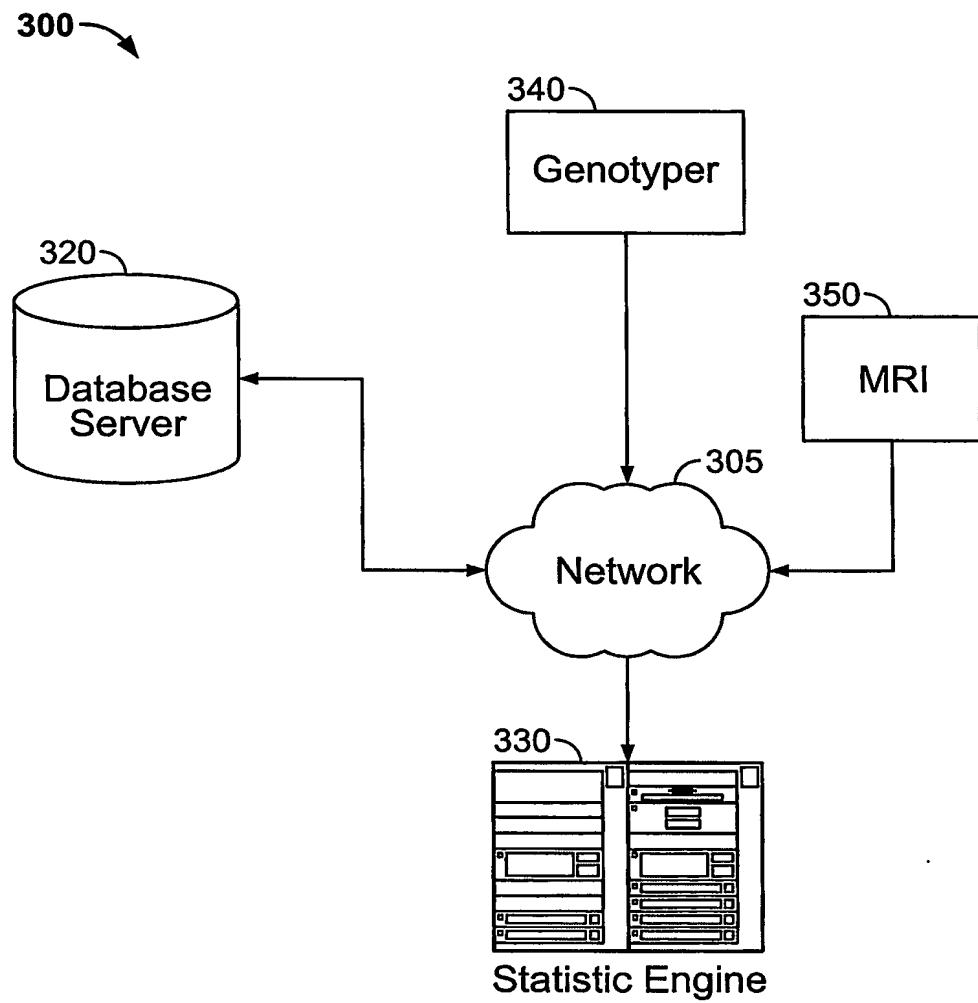


FIG. 21

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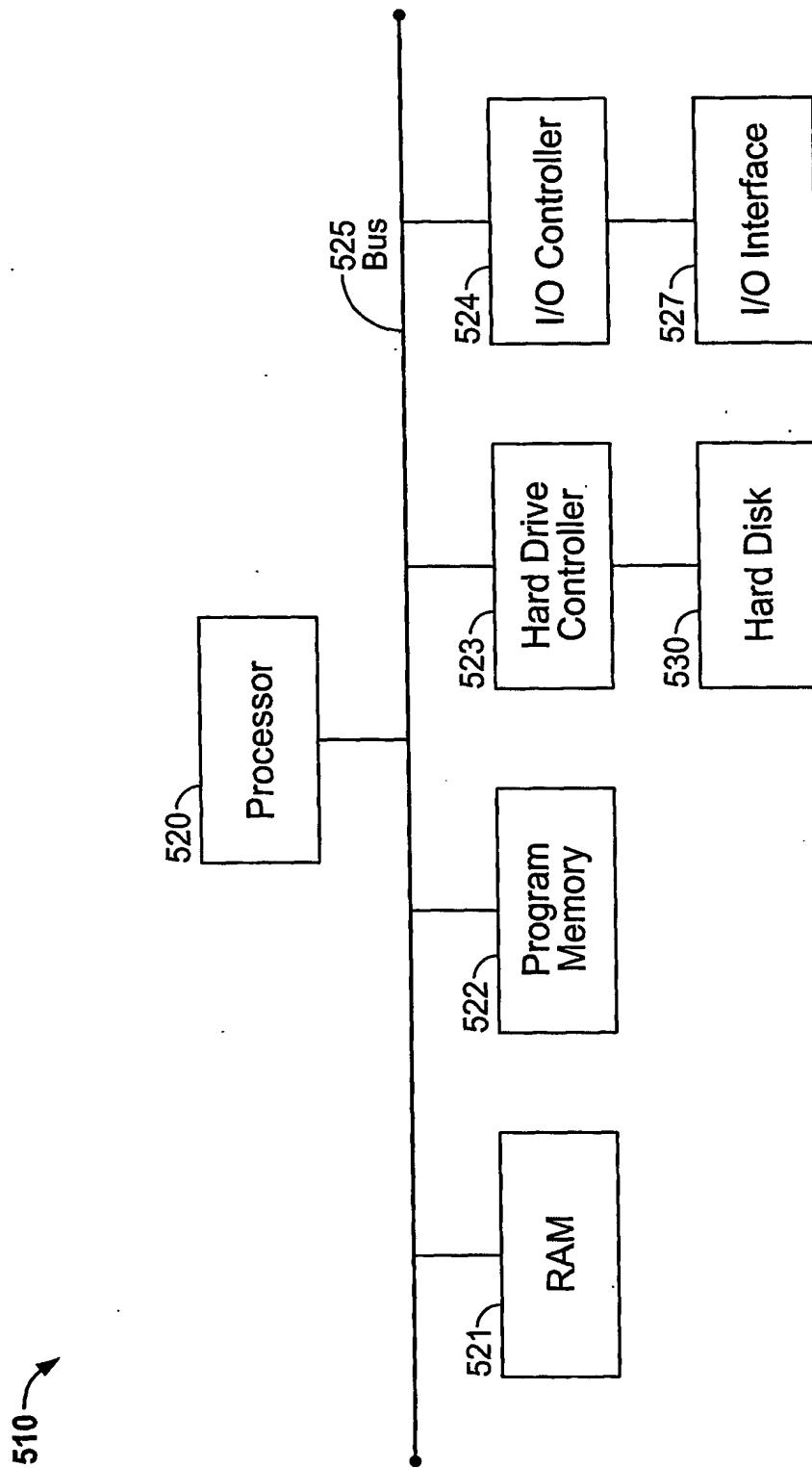


FIG. 22

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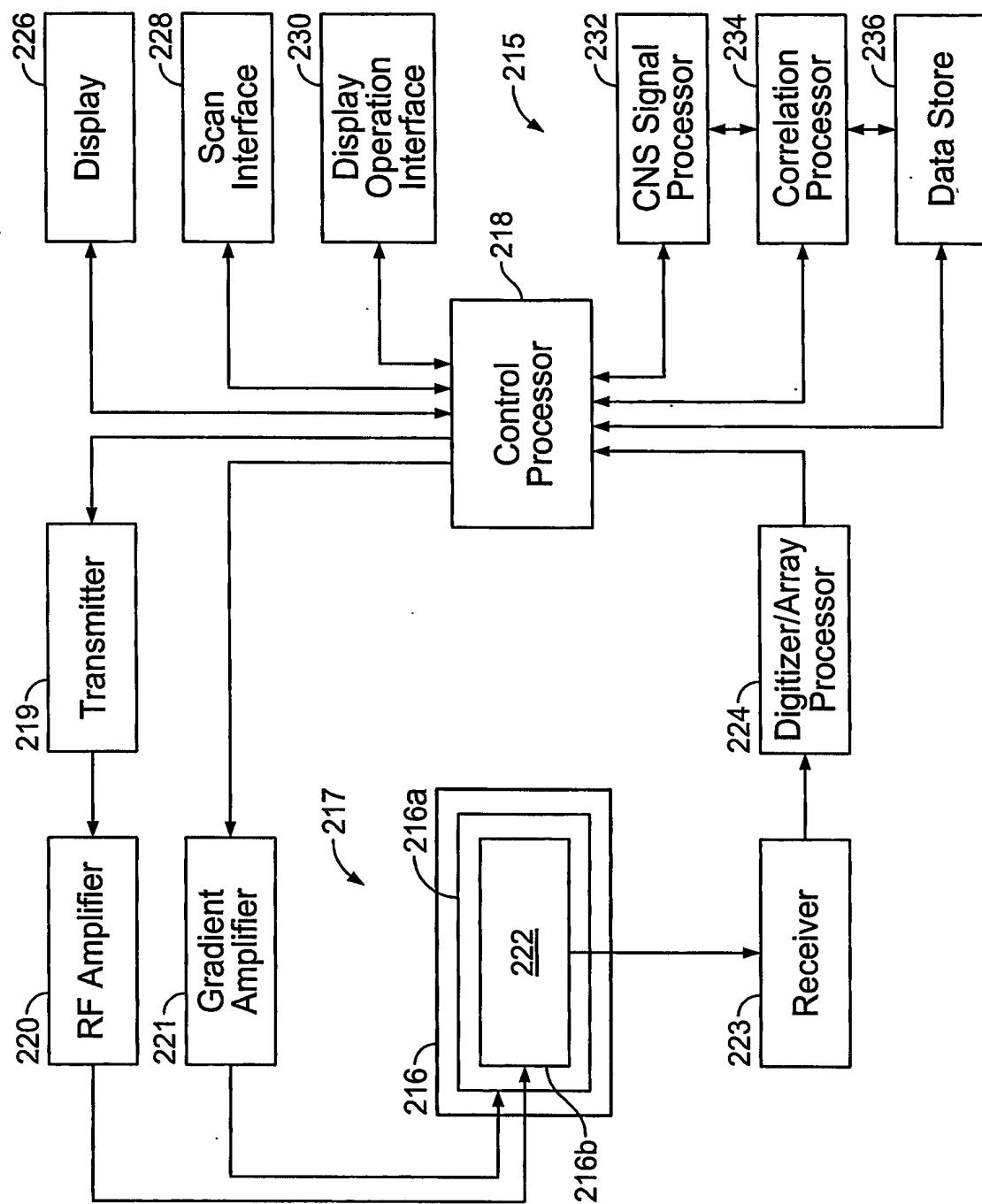


FIG. 23

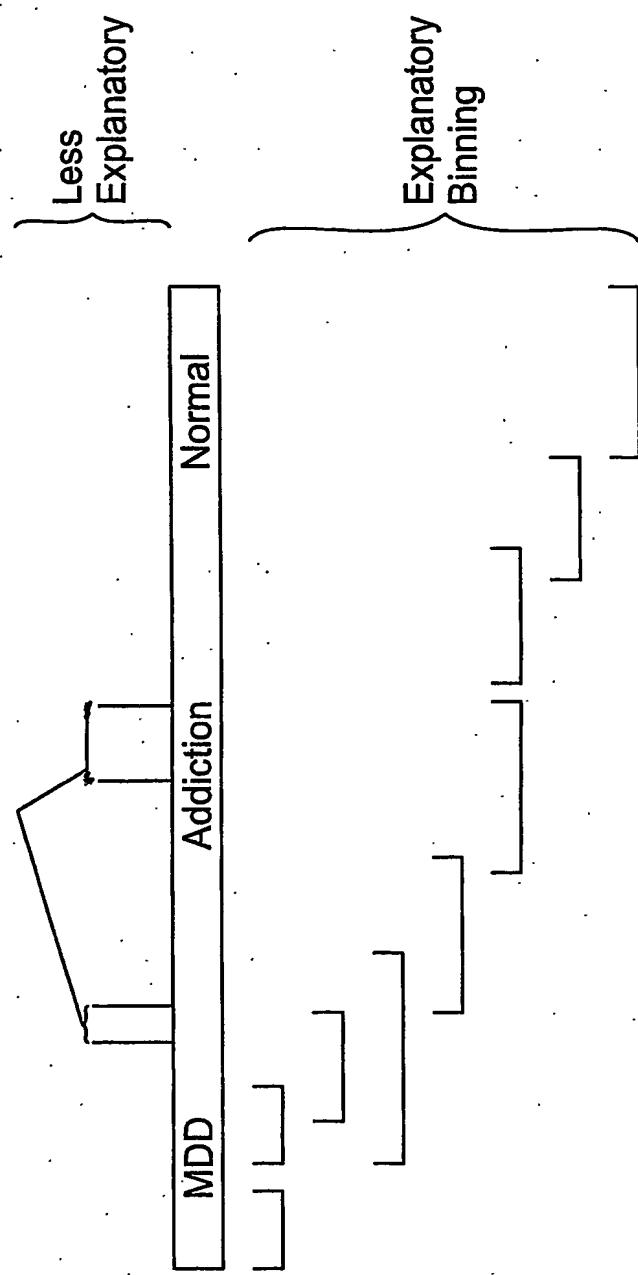


FIG. 24



FIG. 25